

REMARKS

Claims 1-8, 11-15 and 17-28 are pending. Claims 4-7 have been amended to clarify that the first recitation of "biomass" in each claim refers to the biomass in the solid particle and the second recitation of "biomass" in each claim refers to the biomass of the fermentation broth starting material. Support for this amendment is found in the specification as originally filed, including on page 11, lines 4-16.

It is respectfully submitted that the present amendment presents no new issues or new matter and places this case in condition for allowance. Reconsideration of the application in view of the above amendments and the following remarks is requested.

I. The Rejection of Claims 4-7 As Indefinite

Claims 4-7 have been rejected under 35 U.S.C. 112, second paragraph, as allegedly indefinite. The Examiner alleges that it is unclear whether the first and second "biomass" refer to the same biomass or to two different biomasses.

Claims 4-7 have been amended to clarify that the first recitation of "biomass" in each claim refers to the biomass in the solid particle and the second recitation of "biomass" in each claim refers to the biomass of the fermentation broth starting material. Support for this amendment is found in the specification as originally filed, including on page 11, lines 4-16.

Applicants respectfully submit that the amendments to claims 4-7 overcome the indefiniteness rejection. Applicants respectfully request reconsideration and withdrawal of the rejection.

II. The Rejection of Claims 1, 4-8, 12-15, 19-21 and 26-28 Under 35 U.S.C. 102

Claims 1, 4-8, 12-15, 19-21 and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Becker (WO 91/06638). The Examiner contends that Becker discloses a process for preparing an enzyme-containing particle comprising "spray drying" a fermentation broth starting material to obtain a solid particle. The rejection is respectfully traversed.

Contrary to the rejection, Becker does not disclose a process for producing an enzyme-containing particle by spray drying a fermentation broth starting material to obtain a solid enzyme-containing particle. Rather, Becker discloses a process for producing a substantially dust-free enzyme particle by spray coating the fermentation broth onto hydratable core particles in a fluidized-bed spray-coater. See Becker at page 5 to page 6 and page 8 (last paragraph). In particular, the Becker spray coating process is carried out by the steps of:

- a) introducing a particulate, hydratable core material into a fluidized-bed spray coater and maintaining the core particles suspended in the reaction chamber;
- b) providing a fermentation broth containing from about 0.5% to 25% w/w of total solids therein of a water soluble dispersible enzyme produced in the fermentation broth;
- c) spraying the broth onto the core and evaporating the liquid to leave the solids coated on the core.

The present invention, however, is directed to a process for preparing an enzyme-containing particle by spray drying a fermentation broth starting material comprising an enzyme and a biomass to obtain a solid enzyme-containing particle. In particular, as disclosed in the specification, the spray drying process of the present invention includes atomizing the fermentation broth starting to produce atomized fermentation broth and drying the atomized fermentation broth to form the solid particle(s). See the Specification at page 15-17. As would be understood by one skilled in the art, the spray drying process of the present invention clearly differs from Becker in that the present invention does not involve coating a core material with an enzyme solution.

Therefore, Becker does not anticipate the present invention because Becker does not teach a process in which an enzyme-containing particle is prepared by spray drying fermentation broth starting material comprising an enzyme and a biomass to prepare a dried enzyme-containing solid particle.

Reconsideration and withdrawal of the rejection are therefore respectfully requested.

III. The Rejection of Claims 1-8, 11-15 and 17-28 Under 35 USC 103(a)

Claims 1-8, 11-15 and 17-28 are rejected under 35 USC 103(a) as allegedly obvious over Becker in view of Worts et al. (GB 1483591) and Liddell et al. (EP 0366303). Becker is

applied in the same manner as in the rejection under 35 U.S.C. 102(b). Worts et al. is applied as teaching a process wherein the enzyme particles have been granulated by prilling. Liddell et al. is applied for teaching a process wherein the enzyme is a hydrolase. The Examiner alleges that it would have been obvious to modify the process of Becker by the addition of the prilling of Worts et al. and the hydrolase of Liddell et al. to gain the known and disclose advantage of better granulation by prilling and for wider applicability by choosing the broader class of hydrolases.

As previously discussed, Becker, the primary reference, is directed to a process for producing a substantially dust-free enzyme particle by spray coating the fermentation broth onto hydratable core particles in a fluidized-bed spray-coater and Becker does not teach or even suggest that a suitable enzyme-containing particle could be prepared without using a core by spray-drying a fermentation broth starting material comprising an enzyme and a biomass to obtain a solid enzyme containing particle.

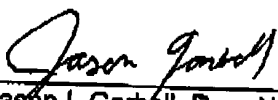
Applicants therefore respectfully request reconsideration and withdrawal of the rejection.

IV. Conclusion

In view of the above, It is respectfully submitted that all claims are in condition for allowance. Early action to that end is respectfully requested. The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

Date: December 19, 2001



Jason I. Garbell, Reg. No. 44,116
Novozymes North America, Inc.
405 Lexington Avenue, Suite 6400
New York, NY 10174-6401
(212) 867-0123

Attorney Docket No.: 6136.200-US

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Jorgensen et al.

Serial No.: 09/675,950

Group Art Unit: 1651

Filed: September 29, 2000

Examiner: Ozga, B

For: Spray Dried Enzyme Product

MARKED-UP VERSION UNDER 37 C.F.R. 1.21

Commissioner for Patents
Washington, DC 20231

Sir:

The following amendments have been made to the above-identified application:

IN THE CLAIMS:

1. (Amended.) A process for preparing an enzyme containing particle, said process comprising spray drying a fermentation broth starting material comprising an enzyme and a biomass, to obtain a solid particle comprising an enzyme and a biomass.
4. (Amended.) The process of claim 1, wherein the biomass in the solid particle constitutes at least 10% of the biomass originating from the fermentation broth starting material.
5. (Amended.) The process of claim 4, wherein the biomass in the solid particle constitutes at least 50% of the biomass originating from the fermentation broth starting material.
6. (Amended.) The process of claim 5, wherein the biomass in the solid particle constitutes at least 75% of the biomass originating from the fermentation broth starting material.
7. (Amended.) The process of claim 6, wherein the biomass in the solid particle constitutes at least 90% of the biomass originating from the fermentation broth starting material.